

## **REMARKS**

Favorable reconsideration and allowance of this application are requested.

### **1. Discussion of Amendments**

By way of the amendment instructions above, prior independent claims 1 and 7 have been amended so as to emphasize that the process and apparatus of the claimed invention are especially adapted for drying of bulk material for use as fuel in a power station operating in connection with a pulp or paper production process and for cooling waste water of the pulp or paper production process. Thus, by way of example, the claims now emphasize that waste water from the pulp or paper production process is brought into heat exchange relationship with the gas to heat the gas while simultaneously cooling the waste water and that the dried material is conveyed from the drying space to the power station and using the dried material as fuel for the power station. Support for such clarifications can be found in the originally filed specification at page 7, lines 22-25, for example.

Thus, following entry of this amendment, claims 1-7, 9-11, 13 and 19-22 will remain pending herein for consideration.

### **2. Request for Continued Examination**

As a procedural note, the present amendment is being filed concurrently with a formal Request for Continued Examination (RCE) under 37 CFR §1.114. Accordingly withdrawal of the "finality" of the August 19, 2009 Official Action is in order so as to allow entry and consideration of the amendments and remarks presented herewith.

### **3. Response to 35 USC §103 Rejections**

The only issues remaining to be resolved in this application are the Examiner's rejections advanced under 35 USC §103(a0. In this regard, claims 7, 9-11 and 19-20

attracted a rejection under 35 USC §103(a) based Kopp-Sorensen (EP 05652583) in view of Mason (GB 283,014) while Dinh (USP 5,343,632) or Lambert (USP 4,490,924) were combined with Kopp-Sorensen et al to separately reject pending claim 13 under this same statutory provision. Prior claims 1, 4-6 and 21 attracted a rejection under 35 USC §103(a) as allegedly unpatentable over Lambert in view of Salokangas (GB 2171401A), with Mason (GB 283014) being combined with such publications to separately reject claims 2-3 and 22 under the same statutory provision. As will become evident from the discussion which follows, all claims pending herein are statutorily unobvious over the applied references of record.

As noted briefly above, one particularly important and special aspect of the presently claimed invention that should not be overlooked relates to the drying of bulk material for use as fuel in a power station operating in connection with a pulp or paper production process and for cooling waste water of the pulp or paper production process. In this regard, the Examiner will appreciate that pulp and paper production is a very energy-intensive industry and even small savings in the energy consumption produce remarkable savings. For example, a conventional way to improve the energy economy of a paper or pulp mill is to use the produced bulk material, such as bark and sawdust, as primary fuel in mill power stations producing energy for the paper or pulping machines. The bulk material, however, is moist whereby the efficiency of process is not optimal. Another problem from the viewpoint of the energy efficiency is that the pulp and paper mills produce large amounts of warm waste waters, which must be cooled before they are expelled to the environment, such as natural rivers, etc. Cooling of the waste water naturally increases the overall energy consumption of the mill.

Thus, the presently claimed invention now emphasizes those techniques that contribute to the overall improvement of energy efficiency in the pulp and paper mills. In this regard, the applicants discovered that the energy of the warm waste waters can be used for drying the moist bulk material, whereby the energy needed for the waste water

cooling is minimized and the energy received from the bulk material in the power station is maximized. The synergetic effect that is obtained by the claimed invention clearly surpassed the expectations of the applicants and provides unexpectedly simple and effective solution to the known problems discussed briefly above.

Turning attention to the applied publications of record, applicants note that Lambert discloses a method for drying material, such as tobacco and textiles. In the disclosed method the concept was to increase the temperature of the drying gas from the output end of the drying chamber towards the input end of the chamber. The drying gas is mainly heated with a number of heating means 29 (steam coils in Fig. 1), not with the waste water. The energy from the exhaust stream of the dryer is used for preheating of the drying gas or for other purposes (column 5, lines 56-62). The idea in Lambert was therefore to improve the efficiency and economy of the drying process by recovering the condensate (water) and heat of the exhaust stream of the drying process itself. There is no indication that the overall energy efficiency could be improved by using heat from waste water of one process in another separate drying process.

Salokangas merely discloses that a filter material can be heated -- not dried -- by preheated air. Preheating is produced by allowing the air to flow through a hose placed into a waste water tank. There is no reasonable basis for combining the teaching of this Salokangas with Lambert. For example, it is clear that the heat obtained by the arrangement of Salokangas is not sufficient for drying bulk material. Secondly, it makes no practical sense to preheat the gas in Lambert by using waste water, as it would be totally contrary to the teaching of Lambert, which stresses the importance of the heat and condensate recovery from the exhaust stream of the drying process.

Thus, a person skilled in the art would derive no direction from Lambert and Salokangas for solving the complex problem of **simultaneous** drying of bulk material to

be used as fuel and cooling waste water from paper or pulp production. Withdrawal of the rejection based on the combination of Lambert and Salokangas is therefore in order.

Kopp-Sorensen et al discloses a "closed loop" process. In this regard, as explained already during earlier prosecution, the idea in Kopp-Sorensen et al is to use heat from sludge burning for drying of sludge, i.e. at the same time to destroy the bulk material and to use the thermal energy obtained in the destruction process for improving the quality (dryness) of the bulk material to be destroyed. Similar to Lambert, it makes no sense to combine any drying step using energy from separate waste water stream, as it would be totally contrary to the teaching of Kopp-Sorensen et al.

Mason discloses a method and apparatus for drying agricultural crops. The plants are dried by using hot gas from furnace oven. There is no incentive in Mason towards the present invention, and a person skilled in the art cannot get any teaching regarding how to solve the special problems associated with the presently claimed invention.

Thus, withdrawal of the rejection advanced on the basis of Kopp-Sorensen and Mason is likewise in order.

Dinh is noted as disclosing generally a gas heating device 760 arrange inside a drying space. However, in view of the discussion above, it should now be evident that Dinh would not cure the deficiencies of Kopp-Sorensen, with or without Lambert. Therefore withdrawal of the rejection advanced against claim 13 is also in order.

Withdrawal of all rejections advanced under 35 USC §103(a) is therefore in order.

**SAARELA et al**  
**Serial No. 10/576,446**  
December 22, 2009

#### **4. Fee Authorization**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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